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Disasters Compared in Six American Communities

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Introduction

Before reporting on our findings, I would like to describe the nature and purposes of the National Opinion Research Center Disaster Project. Since 1950, the Center has maintained a specially-trained disaster team to conduct field investigations of domestic disasters. The maintenance of rapid re-establishment of effective social organization in community disasters, either wartime or peacetime, is the central problem with which the project is concerned. Subsumed under this more general problem are many specific problems concerning human behavior in disasters—e.g., the nature of fear and panic reactions, crowd behavior, leadership, rumor and other forms of communication, the effectiveness of various rescue, relief, control, information and rehabilitation measures, and the changes in personality and social structure which are produced by disasters. The practical aim of the project is to develop findings which will aid the development of effective disaster preparedness and control measures.

The project has been designed to cover disasters varying in scope, type of disaster, and type of groups or population affected—with a view to deriving a systematic body of knowledge concerning human behavior under conditions of stress. Altogether, we have interviewed nearly 1,000 persons who have been involved in over 70 different major or minor crises—ranging from large-scale tornadoes, explosions, and earthquakes to airplane crashes, industrial fires and accidents, building collapses, train wrecks, and so on. However, the majority of our interviews were obtained in 8 field trips to the following community disasters:

1) An airplane crash into a crowd of airshow spectators in the small farming community of Flagler, Colorado, September 15, 1951. The crash killed 20 persons and injured approximately 30.

2) A series of house explosions and fires occurring over a period of about two hours in Brighton, New York, September 21, 1951. Despite heavy property damage —16 houses completely demolished, and about 25 heavily to slightly damaged—only 2 persons were killed and 24 injured.

3) The West Frankfort, Illinois coal mine explosion, December 21, 1951, which killed 119 miners.

4) Three separate airplane crashes in Elizabeth, New Jersey which took place within a period of two months. The first occurred on December 16, 1951; the second, on January 22, 1952, and the third on February 11, 1952. Each of the crashes involved

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passenger planes and each occurred in different residential areas of the city. Total death toll for the three crashes was 106 passengers, and 10 residents of Elizabeth; approximately 50 passengers and residents suffered injuries.

5) The Bakersfield, California earthquake of August 22, 1952. Damage extended over 98 city blocks, with the central business district sustaining the heaviest destruction. The earthquake occurred during business hours; however, only 2 persons were killed and 32 injured.

6) A tornado in White County, Arkansas, March 21, 1952. Part of a widespread series of devastating tornadoes covering 6 states, the tornado in White County was particularly severe. At least 49 persons were killed, and 675 injured. Over 400 houses were demolished and nearly 600 damaged.

The design of each field investigation has been varied to suit the particular problems and events studied. In general, however, the various studies have had a number of features in common. First, although our studies have covered a very large range of problems, we have put primary emphasis upon the reactions and problems occurring during the immediate emergency and post-emergency period. This is the period in which the greatest stress and disorganization occur. In order to obtain valid data on the immediate behavior of the community being studied, we have attempted to get into the field as rapidly as possible. Most of our field investigations have begun within a period of a few hours to three days following the occurrence of the event. Length of time in the field has ranged from one to three weeks, depending upon the scope of the study.

The persons selected for interviewing are divided into two groups: 1) those representing the general population of the community; and 2) those persons who were in a special position to observe the work of the various formal and informal rescue, relief, information, medical, control, and rehabilitation groups or agencies. For convenience, we label these the "general" sample and the "special" sample respectively.

In the general sample, the purpose has been to determine differences in the behavior of persons in relation to their spatial, physical, and social psychological involvement in the situation. In practice, this means that we select persons ranging from those most directly and intimately affected (e.g., those who were themselves directly in impact; seriously injured or incapacitated; persons who had family members or other intimates killed or injured; or whose house or other personal property was destroyed or damaged) to those in-

directly or remotely affected (e.g., had acquaintances injured, experienced the disruption of community services; and persons who suffered no deprivations but learned of the event indirectly through rumor or the mass media of communication). The methods used in selecting this general sample have varied somewhat, depending upon the nature of the problems focused upon. In the smaller scale investigations, a combination of purposive and random area sampling have been used; in the large-scale study of the Arkansas tornado (over 400 interviews), five separate communities having differing types and degrees of involvement were selected and respondents from these communities were chosen by probability methods.

The major purpose of the special sample is to derive information concerning the behavioral and logistic problems faced by the various formal and informal groups who assume responsibility for the various relief, rehabilitation, and control functions. These "special informants" include representatives of the local, state, and national government, Red Cross, Salvation Army, Civil Defense, police and fire departments, hospitals, mortuaries, utilities companies, radio stations, newspapers, etc., and informal and emergent leaders of various types. In this sample, we attempt to obtain a complete coverage of the formal and informal groups who performed the various functions already mentioned.

A disaster, by its very nature, tends to individuate behavior because it initially confronts persons with unpredictable and highly divergent situations. The same disaster means many different things to the affected populace, depending largely upon the nature of their involvement and their previous experience. If you try to superimpose a rigid, preformulated structure upon the event, you are likely to be misled.

For this reason, we have used an almost completely unstructured, non-directive type of interviewing in all of our investigations.[1] The major goal of the interview is to determine how the actor structured or defined the situation and to obtain an exhaustive account of the meaning of the event for him and his immediate associates. Using minimal probing activity and neutral questions whenever needed, the interviewer tries to obtain a complete account of the person's objective and subjective behavior during the pre-impact, impact, and post-impact period; how his behavior influenced and was influenced by interaction with others; his observations and evaluations of the behavior of other persons, groups, and agencies; and his previous experience in disasters and other crises. The final report on this series of studies will take the form of both descriptive and statistical analysis.

In this paper some of the general findings of our studies are presented. The detailed and carefully tested findings of these investigations will not be available until the completion of the present analysis.[2] However, our experience during the past four years indicates that there is substantial evidence to support these general findings.

Social Psychological Effects of Disaster

A few general observations of the nature of disaster behavior in relation to the *type of disaster* follow. Several factors should be taken into account in comparing disasters: 1) the speed of the precipitating agent and length of forewarning to the population; 2) the nature of the destructive agent; 3) the physical scope and destructiveness of the disaster; and 4) the length of the threat.

Our data indicate that an instantaneous disaster—i.e., one in which there is no forewarning—tends to produce the maximum in social and psychological disruption. If persons are given sufficient forewarning to prepare psychological and social defenses, the traumatic effects of the disaster will be minimized. Similarly, if the nature of the destructive agent is clearly perceivable and is well known to the affected populace, it is less likely to be psychologically disturbing than if the agent cannot be directly perceived and its effects are unknown. With reference to the physical scope and destructiveness of the disaster, the evidence suggests that the larger the number of persons killed or injured and the greater the amount of property destroyed, the greater the intensity and scope of the psychological impact. However, the types of persons affected and the nature of the deaths, injuries, and property destruction may introduce important qualifications to this generalization. To cite only one example: Men who successfully withstood active combat and witnessed considerable bloodshed during World War II frequently report that the sight of "helpless" women and children being killed or injured is much more disruptive psychologically than any wartime experience. A further important feature in studying the social psychological effect of disasters concerns the length of the threat. If the threat is over quickly, the affective reactions and social disorganization are likely to be less intense and briefer in duration than if the population is subjected to prolonged or intermittent stress.

At least two general social features should be taken into account when making social psychological comparisons of disasters: 1) the nature of the social situation at the time of impact; and 2) the previous degree of social solidarity among the affected populace. The first is of paramount importance in determining the initial responses to the disaster. The maximum in disruption of the population is likely to occur if the disaster takes place when families and other primary group members are separated. The anxiety and concern over missing family members and intimates usually

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1. Tape recorders are used to obtain a complete transcript of the interview. In their tape recorded form, the interviews range in length from approximately 15 minutes to four hours with an average length of about one and one-half hours. The typewritten manuscripts of the interviews obtained in the eight field trips mentioned average 29 pages per interview, yielding a total of over 15,000 typewritten pages.

Systematic codes are currently being built for the interviews obtained in the 8 field investigations. When the final code structure is completed, each case will be coded and later transferred to IBM cards for statistical tabulation.

2. (Editor's Note:) The final, three-volume report on the NORC Studies was completed in 1954. See Eli S. Marks, Charles E. Fritz, *et al.*, "Human Reactions in Disaster Situations" (Unpublished report, National Opinion Research Center, University of Chicago, Report No. 52, June 1954). (Available to qualified Armed Services Technical Information Agency users as ASTIA document No. AD-107594.) A review of some of the salient findings of these studies is contained in Charles E. Fritz and Eli S. Marks, "The NORC Studies of Human Behavior in Disaster," *Journal of Social Issues*, X, No. 3 (1954), pp. 26-41.

leads to desperate seeking and searching activity and considerable social disruption. Contrarily, the fear and anxiety engendered by the impact tend to be minimized when primary group members are together at the time of impact or their whereabouts can be quickly ascertained immediately following impact.

With regard to the influence of the pre-existent solidarity, the comparison of our disaster cases suggests that a socially cohesive community is likely to recover more quickly from the impact than a community characterized by lack of social solidarity. In the former, spontaneous mutual assistance and emotional support tend to minimize the psychological impact. However, close social relationships among an affected population also have a negative aspect—namely, that the secondary shock of the loss of members of the community and communal property is more widely shared than in a community where the social relationships are more constricted.

Common Perceptions in Disaster

In presenting a few of the more specific findings of our study, I would like to indicate some which seem to parallel those reported by Dr. Spiegel. He indicated that the initial disaster cues were interpreted within a normal frame of reference. This tendency to assimilate disaster cues to a normal definition is particularly common in an instantaneous disaster or in a disaster where the precipitating agent is unknown or undetectable. In the Arkansas tornado, for example, many persons initially interpreted the "roaring" sound of the tornado as a train passing on the railroad tracks nearby. In a carbon monoxide asphyxiation incident occurring in an industrial plant, we found that most of the workers initially assimilated their physical symptoms to such "normal" definitions as excessive eating or drinking, staying up too late the night before, chronic illnesses from which they normally suffered, and so forth. In some cases, this process of assimilation went on for so long that they inhaled nearly fatal doses of the gas before they became aware of the danger in their immediate surroundings.

This is closely related to another common feature of disaster perceptions—i.e., the tendency for persons to assess the nature and extent of the disaster in terms of their immediate surroundings. For example, when a sudden increase in the gas main pressure set off the widespread series of house explosions in Brighton, New York, each housewife initially tended to interpret the situation in terms of her own household. "I thought it was *my* gas in *my* house," was a typical expression of this tendency. This tendency for individuation of interpretation is understandable, of course, in terms of the limited spatial perspective of any given actor or set of actors. However, it is precisely this tendency, together with the nature of the person's ego-involvement, which helps account for the heterogeneity of behavior in relation to the threat. Each person or group tends to act initially on the basis of a definition that is somewhat private, in the sense that it is formulated on the basis of the immediate situation which he perceives. The highly variegated nature of the situations in any large-scale disaster makes for considerable heterogeneity in the behavior of the populace.

Initial Behavior in Disaster

Another observation concerning the initial forms of behavior occurring in disasters can be made. The imagery of disaster behavior that is often fostered by the popular literature is one which pictures the population engaging in bizarre, irrational, uncontrolled, and maladaptive types of behavior. This is a grossly distorted and inaccurate picture. It seems to arise from the failure to differentiate between social disorganization and individual disorganization. It is true that the initial behavior frequently violates the usual social expectations and is often socially disorganized. However, as Thomas and Zuaniecki pointed out, social disorganization and individual disorganization are not necessarily coextensive, and nowhere is this better exemplified than in the initial responses of a disaster struck population. From the point of view of the actor, the usual norms are no longer appropriate to the changed situation which he can perceive. In view of his immediate situation, the behavior may be quite rational, controlled, and adaptive. The "total picture" frequently distorts this essential fact.

As a matter of fact, the evidence from our studies is overwhelming in indicating that the non-rational and uncontrolled forms of behavior are much rarer and much briefer in duration than is commonly supposed. Panic, for example, is a relatively infrequent form of behavior on the part of persons in an impact area. Defined as an acute fear reaction followed by flight behavior, it tends to occur only under fairly specific conditions: 1) when a person or group is immediately and directly threatened by danger (e.g., when an explosion or fire occurs in his immediate vicinity) ; and 2) the person or group defines the situation as one in which escape is possible at the moment but may become impossible in the immediate future. Moreover, when it does occur, panic tends to be short-lived, lasting only until the person escapes from the immediate source of danger. Controlled withdrawal —i.e., where the withdrawal is not only oriented in terms of *escape from* the danger but *movement toward* a goal—is a much more common form of behavior than panic. In general, the goal-oriented forms of behavior are much more common than the uncontrolled, non-rational types, even on the part of persons who are in the epicenter of a disaster. Persons on the periphery or outside the impact area most frequently engage in anxiety motivated behaviors—e.g., attempting to locate, rescue, or retrieve intimates or other cherished objects in the impact area. It is not the irrationality or maladaptiveness of individual behavior that raises logistic and control problems in disasters; rather it is the lack of coordination among the large number of actors who are acting on the basis of relatively private definitions. This is why the reestablishment of the channels of communication becomes so crucial in disasters. In order to restore concerted behavior, it is necessary to substitute a common or collective definition for the multitude of private definitions.

Leadership in Disaster

It has already been indicated that the assurance of the safety of intimates and a high degree of previous solidarity are positively related to self-control and organized response to disaster. Additional positive factors include the possession

of specific, well-defined role responsibilities; previous experience in disasters; pre-rehearsed plans of action; the possession of disaster-related skills; and the absence of strong ego-involvements in the disaster.

Generally speaking, we have found that persons who take an organizing, initiating, or leadership role in disasters have one or more of the above characteristics, and I believe that it is reasonable to hypothesize that the greater the number of these characteristics or relationships, the greater the likelihood of a person taking a leadership role. We have found that emergent disaster leaders tend to fall into two major categories: 1) those whose usual occupational or social roles have inured them to danger and prepared them for the types of problems which are found in disasters, and 2) those who have no strong ego-involvements in the disaster. Pre-eminent among the first group are the "disaster role functionaries"—e.g., firemen, policemen, physicians, nurses, utilities workers, priests, morticians, etc. Since they are prepared for the types of problems which arise in disaster, the event usually does not constitute as shattering an experience for them as it does for the general populace. Hence, they can maintain self-control or regain their self-control more quickly. These persons, of course, do not necessarily take an organizing or leadership role with reference to the large community. Oftentimes, they experience a definite role conflict. The physician, for example, may be faced with the choice of assuring the safety and care of his wife and child or playing his professional role of physician. Unless these persons are assured of the relative safety of persons with whom they are highly ego-involved, the conflict is initially resolved in favor of concern for primary group attachments.

Strangers and other persons who have no strong emotional involvement in the disaster also appear more likely to take an initial leadership role. Having no strong ego-involvements, they can maintain greater detachment and critical control over their behavior than residents who have such involvements. All of this suggests that, ideally, disaster leadership should be composed of persons who have a great deal of training and empirical experience in disasters and who have minimal involvement in the community struck by the disaster.

I do not wish to imply by the latter statement that a disaster-struck community becomes completely helpless and dependent. On the contrary, we have found that the greater share of the immediate rescue and relief work is undertaken by persons or agencies in the stricken community, often before the arrival of outside aid. This informal relief work usually consists of thousands of small, spontaneous acts which, in summation, are of major importance in coping with the emergency. However, for the most part, these efforts are uncoordinated and unsystematic in nature. The community-oriented, coordinating, organizing type of leadership is most frequently performed by persons with special training and lack of strong ego-involvement.

Conclusion

In conclusion, I would like to comment briefly on a problem mentioned by Dr. Spiegel—i.e., the problem of blame, resentments, hostility, and aggressions in disasters. Much of the literature suggests the notion that scape-goating or the assessment of blame is a sort of automatic by-product of disasters or crises. Furthermore, there is a rather widespread belief that the expression of hostility is a matter of aggressive reaction to the deprivations posed by a disaster and is capable of being discharged against any target. The choice of a target, according to this conception, is an irrational, fortuitous process.

Our data do not support these contentions. We have not found widespread or intense hostile feelings or aggressive actions in any of the disasters that we have investigated, including the "man-made" ones. Persons who experience the most intense losses and deprivations frequently exhibit no feelings of resentment or aggression. Of course, people do speculate on the cause or reasons for the disaster. However, this is usually a fairly rational process, aimed at understanding the event and control over possible future occurrences. It does not necessarily indicate that the objects singled out will be the object of aggressive orientation or action. Our evidence suggests that feelings of resentment or hostility are unlikely to be generated, or will be of little consequence, unless the following conditions apply: 1) the persons or groups singled out for responsibility have been grossly negligent in the performance of their expected roles or the actions or inaction of these persons or groups blatantly violates the general social norms or established values; and 2) there was widespread dissatisfaction or antagonism toward these persons or groups prior to the disaster. Admittedly, this problem needs further study, particularly by periodic re-sampling of the same disaster-struck population over a long time span. Some of the feelings of resentment are likely to arise in the later stages of relief and rehabilitation, when discriminations are made in terms of "who gets what and why."